IN THE CLAIMS

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Cancel Claims 1-31 and enter the following new Claims:

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1. (New) A smart memory integrated-circuit device, comprising:

a memory array section;

a special-function section and special-function software used by the special-function section to provide a function other than an exclusive memory function, wherein the special-function section and special-function software are packaged with the memory array section in a single smart memory integrated-circuit package; ~~and~~

wherein said single smart memory integrated-circuit package incorporates all memory functions of a standard memory that are provided by the memory array section and special-function software in addition to a special function that is provided by the special-function section in the single integrated-circuit package: and

wherein the special-function section that provides a function other than an exclusive memory function is connected to the memory array section through a common internal bus within the smart memory integrated-circuit package to thereby significantly reduce the need for the memory array section to communicate with another external, baseband integrated-circuit through an external common bus that has significantly greater propagation delay, parasitic capacitance, inductance, and resistance and that is required to be driven with higher current interface driving circuits.

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2. (New) The smart memory of Claim 1 wherein the single smart memory integrated-circuit package has substantially the same type, fit, and form of a package for only a conventional memory package that has only the memory array without the special function section.

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3. (New) The smart memory of Claim 1 wherein the special function section that provides a function other than an exclusive memory function provides one or more memory-intensive functions.

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4. (New) The smart memory of Claim 1 wherein the smart memory integrated-circuit package is adapted to replace a standard memory product in a wireless appliance and is also adapted to incorporate the special function section into a standard memory package and thereby not requiring an additional special function IC; the need to have a more powerful baseband chip; or the need to significantly alter wireless appliance hardware, software, system architecture, and a printed-circuit design to which the single package is mounted in the wireless appliance.

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5. (New) The smart memory of Claim 1 wherein the memory array section and the special-function section that provides a function other than an exclusive memory function are both formed together monolithically as a single integrated-circuit chip.

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6. (New) The smart memory of Claim 1 wherein the memory array section and the special-function section that provides a function other than an exclusive memory function are both formed on a single integrated circuit with the same fabrication process.

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7. (New) The smart memory package of Claim 1 wherein the memory array section and the special-function section that provides a function other than an exclusive memory function are provided as separate integrated-circuit chips that are <u>both</u> contained in the same smart-memory package.

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8. (New) The smart memory of Claim 1 wherein the special-function section and the memory array section that provides a function other than an exclusive memory function operate on an internal voltage supply level that is lower than an external voltage supply level for the smart memory integrated-circuit package.

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9. (New) The smart memory of Claim 1 wherein the special-function section that provides a function other than an exclusive memory function is selected from a group consisting of: a high-fidelity audio system, a multi-media codec, a wireless short-

distance communication system, streaming video system, a wireless LAN, a Global Positioning System, and a video display.

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10. (New) The smart memory of Claim 1 wherein the memory array section is selected from a group consisting of: a SRAM, a pseudo-SRAM, a DRAM, an EEPROM, an EPROM, a FLASH, a RAM/FLASH combination, a RAM/FLASH/ROM combination, a ferroelectric RAM, and a magneto-RAM.

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11. (New) The smart memory of Claim 1 wherein the smart memory package type is selected from a group consisting of: a ball grid array BGA package, a quad flat pack QFP, a pin grid array package, and a multi-chip-module MCM package.

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12. (New) A smart memory integrated-circuit device, comprising:

a memory array section;

a special-function section that provides a function other than an exclusive memory function using software that is stored in the memory array section and that is packaged with the memory array section in a single smart memory integrated-circuit package;

wherein said single smart memory integrated-circuit package incorporates all memory functions of a standard memory that are provided by the memory array section in addition to a special function that is provided by the special-function section in the single integrated-circuit package;

wherein the special-function section is connected to the memory array section through a common internal bus within the smart memory integrated-circuit package; and

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wherein the single smart memory integrated-circuit package has substantially the same type, fit, and form of a package for only a conventional memory package that has only the memory array section without the special function section.

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13. (New) A multi-media RAM (MMRAM) on a single integrated-circuit chip, comprising:

a memory array section that is formed on a single integrated-circuit die and that is contained in a multi-media RAM package;

a compressor/decompressor (CODEC) section integrally formed on the same single integrated-circuit die and contained in the same multi-media RAM package as the memory array section, said CODEC section formed on the same single integrated-circuit die with the same fabrication process as the memory array section; and

wherein the CODEC section is provided with a digital signal processor and CODEC software on the single integrated circuit die.

wherein connections between the memory array section and the CODEC section are provided on the single integrated-circuit die.

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14. (New) The multi-media RAM of Claim 13 wherein the single integrated-circuit die is adapted for use in a wireless device that has a baseband DSP IC and wherein the single IC die is adapted to have minimal I/O interfacing with the baseband DSP IC in said wireless device such that the processing data rate of the baseband DSP IC is thereby reduced.

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15. (New) The multi-media RAM of Claim 13 wherein the CODEC is provided as a digital signal processor a microcontroller and CODEC software on the single integrated-circuit chip.

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16. (New) The multi-media RAM of Claim 18 wherein the package for the single integrated-circuit chip is substantially the same as the package for a conventional memory array formed on the single integrated-circuit die.

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17. (New) The multi-media RAM of Claim 13 wherein the multi-media RAM package incorporates the CODEC section and the CODEC software into a standard memory package that is adapted to replace a standard memory product in a wireless appliance and thereby does not require an additional special function IC; a more powerful baseband chip; or significant alterations to the wireless appliance hardware, software, system architecture, and printed-circuit design to which the single package is mounted in the wireless appliance.

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18. (NEW) The multi-media RAM of Claim 18 wherein the memory array section and the CODEC section are formed together monolithically as a single integrated circuit chip.

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19. (currently amended) A method of enhancing the capability of an integrated-circuit memory, comprising:

packaging a memory array section together with a special-function section that provides a function other than an exclusive memory function in a single smart-memory integrated-circuit package; ~~and~~

incorporating in the single smart-memory integrated-circuit package all of the memory functions of a standard memory that are provided by the memory array section in addition to incorporating special-function software for the special function section; and

connecting the special-function section with the memory array section through a common internal bus within the smart-memory integrated-circuit package to significantly reduce the need for the memory array section to communicate with an external, baseband integrated-circuit over a common external bus that has significant

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propagation delay, parasitic capacitance, inductance, and resistance that further necessitate high current interface driving circuits;

whereby the single smart-memory integrated-circuit package is adapted to replace a standard memory product in a wireless appliance and to incorporate the special-function section in the smart-memory integrated-circuit package without requiring an additional special function IC, without the need to have a more powerful baseband chip, or without the need to significantly alter wireless appliance hardware, software, system architecture, and a printed-circuit design to which the single package is mounted in the wireless appliance.

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20. (New) The method of Claim 19 including packaging the memory array section and the special-function section that provides a function other than an exclusive memory function in a single smart-memory integrated-circuit package that has a type, fit, and form of a conventional, standard memory package for the memory array section without the special-function section.